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! "#$%"&' "%("$%&) *#+%", &-&. /01/02!
" ##$%&'!()**#+!$,!,-+#-!)$!./01!
!%$#3*#4&5677*%""&" "86(%,&9!""&: 6; "(86*#%&8(","#%$%*6#,&$#3&6%<"(&36=+7"#%,&$>$*?$@?"&6#?*#"&A6(&
3"%$*?,/B&
2()+#3%(!4, *%(#5!6!7##)&&)!89$$, &!
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: #!;)+!#%; \$!<%!=-, >#(\$5/

: #!3#!C, 9-!\$%#5!!3, $5\$^*B!C$, -!\$; #!U%-) -B!7%#(\$, -!\$, !%C, -3!3#3<#-5@M; #-#1;)5!<##&!5, 3#!-#5; $9CC^*\%'!$)3, &'!*%-)-\% &5@M; $\#!^*\%-$)-B!\%!\\$-) &5\%\% &\%'!\%!5, 3#!5;)-#+!5, C\\$D)-#1!D; \(\(\Circ\); 15; 1

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X#593\%'!+\%(955\%\&!, 0!=-, =, 5)*/!
R/!M; #!(,,,-+%)$,-!D,9*+!<#!$; #!&#D!C)(9*$B!*%&#L!A,D!(,9*+!$; #B!$#)(; !C,9-!&#D!(,9-5#5!%!$; #B!)-#!
, &*B!$#) (; %&' !$D, !(, 9-5#5L!
2/!M; #B!D, 9*+&K$!<#!)5H#+!$, !$#)(;!<#B, &+!$; #!&, -3)*!(, 9-5#!*, )+@!
R/!J)&!B, 9!5)B!$; )$!5, 3#, &#!D; ,!%!', %&'!$, !<#!; %#+!D\%*!<#!$; #!(,,-+\&)$, -L!
2/!: #!)-#&K$!59-#!$; )$!$; #!&#D!C) (9*$B!D, 9*+!<#!(,,-+%)$, -@F$!3)B!<#!5, 3#, &#!#*5#@
R/!: ;)$!%5!$; #!#Z=#($#+!5\\\#!, C!(,;,-$L!
2/!F&!$; #!C%5$!B#)-I!D#!#Z=#($!]Q_I!<9$!$; )$!%!D%*!'-, D!59<5$)&$\\^**B@!
j,$#!,&!=-,=,5)*/!4)55#5!1?0?!
J, )5$)*!k, &#!" )&)'#3#&$!" )5$#-5!7#'-##!
M; %!=-, '-)3!D%*!$#)(;!,9-!5$9+#&$5!D;)$!$;#!&)$9-)*!#&E%,&3#&$!%!*\##I!D;)$!$;#!9-<)&!#&E%,&3#&$!
; )5!+, &#!$, !$; #!&)$9-)*!#&E%, &3#&$!!)&+!; , D!$; #!$D,!()&!#Z%$!$, ' #$; #-@f&#!)5=#($!, C!$; #!=-, ' -)3!%!
$,!$-)%!5$9+#&$5!)<,9$!%59#5!-#*)$#+!$,!;,D!$,!95#!(,)5$5!)&+!$;#!%3=*%()$% &5!,C!3)&%=9*)$% &!,C!
(,5$)^!#&E%,&3#&$5!)&+!=,$#&$\\dagger*1'(,&5#O9#&(#5!,C!-\%#5!\\&!$;#!5#)!*#E#*!)&+!$;#!)55,(\\dagger*1')55,(\\dagger*1')55,(\\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(\dagger*1')55,(
M; #-#!D%*!<#!)!4V" !c4-, C#55% &)*!V(#&(#!" )5$#-5d!)&+!)!" @@+#'-##@: #!D, 9*+!5; )-#!(, 9-5#5!D%; !
7)$)!V(\(\(\psi_4\)\(\psi_1\)\)\(\psi_4\)\(\psi_1\)\(\psi_4\)\(\psi_1\)\(\psi_4\)\(\psi_1\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\psi_4\)\(\ps
(, 3=*#$% &!C-, 3!, $; #-!9&%E#-5%\#5@M; #!; 93)&!#*#3#&$!%!E#-B!%3=, -$)&$!C, -!$; %!+#' -##@!
R9#5$% &/!A, D!D%*!$; #!=-, '-)3!#3=; )5\\#!; 93)&!+)3)' #!$, !$; #!(, )5\\L!
2/!: #!D, -H!D%; !)!&93<#-!, C!' -, 9=5!$; )$!-#' 9*)$#!95#!, C!(, )5$)*!)-#)5!!D; %(; !5$9+#&$5!D%*!*#)-&!)<, 9$@!
M: %5!%5!)$!$:#!:#)-$!, C!D: )$!D#!+,!:#-#@!
J, 33#&$/!: #!59==, -$!B, 9-!=-, =, 5)*\\5!-\#09\#5\$!C, -!: #<!\fC!\V(\\#\&(\#!59<5(-\\-\$\\ &\@
R/!: ;)$!)-#!$; #!, ==, -$9&%#5!C, -!'-)&$5!-#*)$#+!$, !$; %5!=-, '-)3L!
2/!2!*, $!, C!=, $#&$%)*!'-)&$!C9&+%&'!%!)E)%)<*#!C, -!'-)+9)$#!=-, '-)35!*M#!$; %5!, &#@!
", $% &!$, !C) 5$Q$-) (H@!
7%5(955% &!, C!3, $% &/!!
A)5!$; %5!', &#!$; -, 9'; !241 4L!
2/!T#5@M; #B!; )E#!)!=*)&!%&!=*)(#!)&+!$; %!D)5!9&)&%3, 95*B!59==, -$#+!<B!241 4@
j,$#!$,!C)5$0$-)(H/!4)55#5!1?0O!
j,$#!,&!=-,=,5)*/!4-,=,5)*!=)55#5!9&)&%3,95*B@
g#D!(, &(#&$-)$%, &5!%!Y(, &, 3%(5!
: #!)-#!)5H%\'!C,-!&,!-#5,9-(#5!C,-!$;%5!=-,'-)3@: #!;)E#!C#D!3)>,-5!%\!YJfg!<9$!*,,H%\'!C,-!D)B5!$,!
#&(, 9-)'#!5$9+#&$5!$,!3)>,-!%!YJfq@G#D!5$9+#&$5!H&, D!39(;!)<,9$!#(,&,3%5!)&+!D;)$!%!%@")&B!
5$9+#&$5!(, &C*)$#!#(, &, 3%(!D\$;!<95\&#55\@! #!D)&$!$,!\&C, -3!5\$9+#&\$5!)<, 9$!, ==, -$9&\$\#5!C, -!\$; ,5#!
D%; !YJfq!+#'-##5@: #!$; , 9'; $!$; )$!, &#!D)B!$,!(, 339&%()$#!$; %5!%!<#!)++&'!(, &(#&$-)$% &5@M; #5#!
D, 9*+!&, $!) ++!(, 9-5#5!!<9$!5%3=*B!; #*=!5$9+#&$5!9&+#-5$)&+!D; )$!%!)E)%)<*#!)&+!D; )$!(, 9-5#5!$, !$)H#!
$; )$!D\%*!59==, -\$!5\$9+\#&\$5!5\#\H\&\'!()-\#\-5!\&!\$; \#5\#!)-\#)5\@
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 \begin{array}{l} \texttt{f9-!-\#E\%\#+!=-,=,5)^*!\%(^*9+\#5!-\#5=,\&5\#5!\$,!\$;\#!(,\&(\#-\&5!\$;)\$!D\#-\#!-)\%\#+@!} \\ ! \\ \texttt{J,33\#\&\$/!F!59''\#5\$!B,9!(,\&5\%\#-\%'!)++\&'!)!V,(\%^*!:,-H!(,9-5\#!\$;)\$!)(\$9)^{**}B!+,\#5!\&,\$!-\#09\%\#!\&,\&0} \\ \texttt{V,(\%^*!:,-H!3)>,-5!\$,!\$)H\#!=-\#-\#99\%\%\#5@!} \\ 2/!:\#!D\%^*!<\#!;)==B!\$,!(,&5\%\#-!\$;\%!*)\$\#-@! \\ \texttt{J/!FK3!\&,\$!\%(^*\%\#+!\$,!59==,-\$!\$;\%!(,&(\#\&\$-)\$\%\&@2\$!\$;\#!\#\&+!,C!B,9-!5\$)\$\#3\#\&\$!IB,9!5)\%+!\$;)\$!\$;\#!=-\%3)-B! \\ =9-=,5\#!\%!\$,!\%C,-3!5\$9+\#\&\$5@25!=)-\$!,C!\$;)\$!=9-=,5\#!+,!D\#!;)E\#!)\&B!+)\$)!59''\#5\$\%'!\$;)\$!=-\#0*)D! \\ (,&(\#\&\$-)\$\%\&!)-\#!3,-\#!*M\#*B!\$,!<\#!)+3\%\$\#+!\$,!,-!<\#!59((\#55C9^*!\%!^*)D!5(;,,*L!)+2.5**(,9-)'#!5\$9+\#\&\$5!\$,!$)H\#!(,9-5\#5!\$;)\$!D,9^*+!;\#^*=!$;\#3!\%!^*)D!5(;,,*@
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%(*9+#!)((, 9&$)<%%BI!)&+!=-, E%%'!#+9()$% &!3)$#-%)*5!D;%(;!3)B!%(*9+#!3)&+)$, -B!$-)%%'!!
=#-; )=5!)*, &'!D%;!, 9-!)&&9)*!#$; %(5!$-)%&%'@!
J, 33#&$/!F5!$; #-#!)&B!5, -$!, C!)&!, 3<9+53)&!D; ,!(, 9*+!*, , H!)$!$; %L!
D, 9*+!<#!3, -#!5#&5%%E#@!
J/!M; #-#!)-#!)!*, $!, C!, $; #-!#CC, -$5!+#)*%\'!D\%; !5\\3\%)-!\\659#5\!: ;, !D\\*!<#!#&C, -(\\6\'!\$; \\6\L!: ;)\$!, CC\\(#L!
2/!F+\#)^{**}B!\$; \#!, 3<9+53)\&\%5!, CC\%(\#!D, 9^*+!; )&+^*\#!\$; \%GF!D, 9^*+!^*M#!\%!\$, !<\#!; , 95#+!)^*, &'!D\$; !, \$; #-!
)&!%E%#+!5=#)H#-@!
J/IFID. 9*+!9-' #!$: #!) + 3 % %5-) $% &!$. |% (*9+#!% E\%#+!a#&$#-$)\%#-5b!)*, &' !D\%: !\&E\$#+!5=#\]H#-5!D; #&!
(, \&5\%\#-\&' !E\%\%, -5!\$, !() 3=95@!
R/!M; #!=-#) 3 <*#!%(*9+#5!a%3 3% -) $% &!5$) $95lb! < 9$!$; %1%1&, $!%(*9+#+!C9-$; #-!%!$; #!+, (93#&$@F!D, 9*+!
=-, =, 5\#!\$; \$!D\#!\%\&(*9+\#!\%!\%!, \$; \#-!*\%\$5!, <math>\$!3) -'\%\&)*\%\#+!'-, 9=5@!
J/!M; #-#!%!(9--#&$*B!)!5#)-(; !C, -!)!&#D!, 3<9+53)&@F!)*5, !D)&$!95!$, !$; %&H!)<, 9$!$; #!)((, 9&$)<%%B!
=)-$!, C!$; %!6!D; )$!; )==#&5!D; #&!)!5$9+#&$!c, -!)&B!, $; #-d!E% *)$#5!)&B!; )$#!5=##(; !=, *%(BL!
J/IFID, --B!) <, 9$!$; %!) &+!5#Z9)*!) 55) 9*$!) &+!, $; #-5!<#() 95#!&, $; %! !#E#-!-#)**B!' #$5!+, &#!) <, 9$!$; #5#!
%59#5!<B!)+3%%$-)$% &@!
$; #!)+3%%5$-)$% &@
J/IFI; )E#!5, 3#!09#5$% &5!)<, 9$!5, 3#!, C!$; #!3#)&%'!, C!$; #!D, -+%'!%!$; %5!+, (93#&$@
J/!J, &(#-&5!#Z=-#55#+!)<, 9$!$; %!=, $#&$\)**B!*\3\$#+!D; , !C) (9*$B!()&!\&E\$#!5=#)H
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: #!+%+!; %$, -%()*!-#5#)-(; !, &!95#!, C!UF82!<B!$; #!\&%E#-5%BI!D; %(; !%:!5933)-\##+!\&!$; #!-#=, -$@: #!
-#(, 33#&+!$; )$!UF82!-#3)%!)!5$9+#&$0+#5% &#+!=-, '-)3!)&+!59==, -$!=-, 3=$5m(, &(#&$-)$% &5!!<9$!+,!
&, \$!D) & \$!UF82!\$, !<\#!95\#+!\%!-\#=*) (#3#&$!, C!=-, '-) 35@M; #-#!5; , 9^*+!<\#!5, 3\#!=-, (#55!\%!=*) (#!C, -!; , D!)!
UF82!=-, 3=$m(, &(#&$-)$% &!()&!3, E#!$,!<#(, 3%\'!)!=-, '-)3@: #!+,!&, $!59' '#5$!)&B!&#D!5$-9($9-#+!
UF82!, CC#-%2'5!*\\#!\$; #!\7\\\J!\#\-*\B!(; \%+; , , +!)\&+!\#*\3\\&\$\-\B!\#+\9()\$\%\\&!\UF82\\@M; \#-\P!\5; , 9\*+!<\P!\#\\9\\\$\\
(, 3=\#\&5)$% &!C, -!$; , 5#!(, , -+\%)$%'!UF825@
+, (93#&$!)&+!*#)+#-5; %=!=, 5%$% &5@!
M; #!)+3%%$-)$% &!;)5!)'-##+!$,!)((#=$!)&B!-#(,33#&+)$% &!$;)$!D#!3)H#!-#'-)+%'!UF82@!
", $%, &!$, !#&+, -5#!-#(, 33#&+)$%, &5@
", $%, &!=)55#5!9&)&%3, 95*B@
<u>M) 5H!G, -(#!, &!G) (9*$B!U#) +#-5; %=!4, 5%% &5!</u>
: #!; )E#!3#$!$; -##!$%3#5!)&+!; )E#!, &#!3, -#!3##$%&'!5(; #+9*#+@: #!)-#!*, , H%&'!)$!; , D!(,,,-+%)$, -5!
)-#!<#%&'!(, 3=#&5)$#+!)&+!D;#$;#-!$;#B!)-#!$)H%&'!(, 9-5#!-#*#)5#5!E5@,E#-Q(, 3=#&5)$% &@: #KE#!)*5,!
5=, H#&!D%; !5#&% -!C) (9*$B!) <, 9$!$; %5!!) 5!D#**!) 5!, $; #-!%5$%$9$% &5@: #!) -#!C#*+%c'!09#5$% &5!C-, 3!
C)(9*$B!)&+!D#!)5H!C,-!)&,$;#-!B#)-!$,!(,3=*#$#!,9-!$)5H@:#!)-#!D,-H%&'!%&!9&%&!D%;!M;#!\&%&@
j,$#!C,-!'%E%&'!$;#3!3,-#!$%3#/!4)55#5!9&)&%3,95*B@
M)5H!G, -(#!, &!V#Z9)*!255)9*$!
```

 $: \#!D\#-\#!) 55\% \&\#+!\$, !-\#E\#D!\$; \#!J) 3=95!J*\%3) \$\#!V9-E\#B5!!D; \%; !D\#!;)E\#@!: \#!\$; \%EH!\$;)\$!\$; \#!(, -\#!)9+\%! \\ D\%*!=-, E\%\#!\&\#+\#++!+)\$)!, \&!\%\&(\%\#\&\$5!, C!5\#Z9)*!E\% *\#\&(\#!)\&+!3, -\#@F&!5933)-B!!\$; \#-\#!\%!)!*, \$!, C!+)\$)!, \&!\$; \%I!<9\$!\%!\%!+\%C%(9*\$!$, !=9$!\%!)**!$, '\#$; \#-\@F&!2=-\%!D\#!;)+!C, (95!'-, 9=5!, &!() 3=95!5) C\#\B!\$;)\$!\%(*9+\#+!, E\#-!, &\#!; 9&+-\#+!5\$9+\#&\$5!!<9\$!;)\E\#!&, \$!;)+!\$\3\#!\$, !(, 3=*\#*B!)&)*B\W#!\$; \#!C\&+\%'5\@89\$!5\#E\#-)*! \$; \#3\#5!;)\E\#!\3\#-'\#+!\\%(*9+\%'!(, &C95\% &!)<, 9\$!\$; \#!\$59\#5!) 3, &'\!5\$9+\#&\$5!!)5!D\#**!)5!C\#)-!)<, 9\$!<\#\%'!\E\(\$\35!)&+!(, &(\#-\&!)<, 9\$!=, *\(\#1!D); ,!5, 3\#\%3\#5!-\#C95\#!$